

Appl. No. 10/754,251
Amdt. dated July 5, 2005
Reply to Office action of May 4, 2005

This listing of claims will replace all prior versions, and listings, of claims in the application:

CLAIMS

1. (currently amended) An aerial recovery system for an aircraft, said system comprising;
the aircraft and
an arrestment line held up at at least one end,
said aircraft containing a capturing device for capturing said line, said capturing device being positioned laterally of a longitudinal axis of said aircraft,
said aircraft containing structure suitable for deflecting said line laterally into engagement with said capturing device, said structure comprising a wing of said aircraft.

Claim 2 canceled.

3. (original) The aerial recovery system of claim 1 where said capturing device is a hook.
4. (original) The aerial recovery system of claim 3 where said hook has a line retaining device.
5. (original) The aerial recovery system of claim 1 in which said capturing device is positioned on a forward inboard edge of a wing of said aircraft.
6. (original) The aerial recovery system of claim 1 in which the capturing device is located inboard of the aircraft's wingtip.

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7. (original) The aerial recovery system of claim 6 in which the capturing device is located inboard more than 5% of the wing semi-span.

8. (original) The aerial recovery system of claim 1 in which multiple generally vertically oriented arrestment lines are spaced apart across the direction of travel of said aircraft as it approaches for recovery so as to increase the lateral capture envelope of said recovery system.

9. (previously presented) The aerial recovery system of claim 1 in which said line is deflected inboard relative to the aircraft.

10. (original) The aerial recovery system of claim 1 in which said line is supported in the air by a rotor.

11. (previously presented) The aerial recovery system of claim 1 in which said line is supported in the air by a self-propelled flying device.

12. (previously presented) The aerial recovery system of claim 1 wherein the arrestment line is held up by a mast.

13. (previously presented) The aerial recovery system of claim 1 wherein said arrestment line is held up by a slender structural member.

14. (withdrawn-currently amended) A method for capturing a flying object, comprising the steps of:

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- a) suspending a linear ~~or curvilinear~~ fixture across the flight path of the object in a ~~generally vertical orientation, or otherwise in an orientation which includes a component normal to the flight path;~~
- b) guiding the object to strike the fixture;
- c) allowing the subsequent motion of the object to slide the fixture along a forward edge of a wing or spanwise lifting surface of the flying object;
- d) intercepting the sliding of the fixture by one or more hooks attached to a wing or spanwise lifting surface of the flying object;
- e) decelerating the flying object under the restraint of the fixture; and
- f) removing the flying object from the fixture.

15. (original) An aerial recovery system for a heavier-than-air aircraft, said system comprising,

the aircraft; and

an arrestment line held up at at least one end,

said aircraft comprising a capturing device for capturing said line and structure suitable for deflecting said line laterally into engagement with said capturing device.

16. (original) The aerial recovery system of claim 15 wherein said structure is constructed to deflect said line laterally outboard.

17. (previously presented) The aerial recovery system of claim 15 wherein said arrestment line is held up by a pole.

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18. (currently amended) In combination, a flying object and an apparatus for capturing the flying object,

the flying object having a spanwise lifting surface with a capture device forward of a forward edge of the lifting surface, the flying object being adapted for flying along a flight path,

the apparatus comprising:

a generally linear or curvilinear fixture positionable in the flight path of the flying object, at least a portion of the fixture being inclined at an angle relative to the spanwise lifting surface to intersect the forward edge of the spanwise lifting surface, the fixture having an engaging surface positioned to engage the capture device of the flying object to releasably secure the flying object to the fixture; and

a support structure coupled to the fixture and positioned to support the fixture in the flight path.

19. (original) The combination of claim 18 wherein the fixture includes a cable or pole.

Claim 20 canceled.

21. (original) The combination of claim 18 wherein the capture device comprises at least one hook on the spanwise lifting surface of the flying object.

22. (original) The combination of claim 21 wherein the at least one hook includes a latch.

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Claims 23 and 24 canceled.

25. (withdrawn) A method for capturing a flying object comprising:

allowing a forward edge of a spanwise lifting surface of a flying object to strike a fixture positioned at an angle relative to the spanwise lifting surface while imparting a decelerating force to the flying object;

releasably engaging the fixture with a capture device on the flying object; and
retrieving the flying object.

26. (withdrawn) The method of claim 25 further comprising sliding at least one of the spanwise lifting surface and the fixture relative to the other while the fixture contacts the spanwise lifting surface.

27. (withdrawn) The method of claim 25 further comprising selecting the fixture to include at least one of a cable and a pole.

28. (withdrawn) The method of claim 25 wherein positioning the fixture comprises supporting the fixture with a slender structural member.

29. (withdrawn) The method of claim 26 further comprising selecting the fixture to include at least one of a cable and a pole, and wherein releasably engaging the fixture with the capture device comprises engaging the fixture with at least one hook on a surface of the flying object.

30. (withdrawn) The method of claim 29 further comprising selecting the at least one hook to include a latch.

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31. (withdrawn-currently amended) The method of claim 25 wherein releasably engaging the fixture with the capture device comprises engaging the fixture with at least one hook on a surface of the flying object.

32. (withdrawn) The method of claim 25 further comprising orienting the fixture at an angle approximately normal to the spanwise lifting surface.

Claim 33 canceled.

34. (currently amended) In combination, a flying object and an apparatus for capturing the flying object, the combination comprising:

a) a linear ~~or curvilinear~~ fixture suspended across the flight path of the object in a ~~generally vertical orientation, or otherwise in an orientation which includes a component normal to the flight path;~~

b) ~~means for~~ support structure suspending the fixture; and

c) ~~means~~ a device attached to the flying object adapted for intercepting the sliding of the fixture along a forward edge of a wing or spanwise lifting surface of the flying object.

35. (currently amended) The combination of claim 34, wherein the linear ~~or curvilinear~~ fixture is a cable.

36. (currently amended) The combination of claim 34, wherein ~~the means for suspending the fixture~~ restrains a lower end of the fixture is restrained to prevent the fixture from swinging freely.

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37. (currently amended) The combination of claim 34, wherein the means device adapted for intercepting the sliding of the fixture comprises at least one hook on a wing or spanwise surface of the flying object.

38. (original) The combination of claim 34, wherein each hook includes a cleat or latch such that after the fixture is intercepted by the hook, sliding of the fixture through the hook is substantially arrested.

39. (original) The combination of claim 34, wherein the motion of the flying object during deceleration is accommodated by compliance of the fixture.

40. (withdrawn-currently amended) A method for capturing a flying object, comprising the steps of:

a) suspending a linear ~~or curvilinear~~ fixture across the flight path of the object in a ~~generally vertical orientation, or otherwise in an orientation which includes a component~~ normal to the flight path, such that the suspension of the fixture is kept clear of said flight path by a distance greater than the height or width of said flying object;

b) guiding the object to strike said fixture;

c) intercepting the fixture by one or more hooks attached to a wing or spanwise lifting surface of the flying object, the hook or hooks extending forward of a leading edge of the wing or spanwise lifting surface to engage the fixture;

d) decelerating the flying object under the restraint of the fixture; and

e) removing the flying object from the fixture.

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41. (currently amended) In combination, a flying object and an apparatus for capturing the flying object, the combination comprising:

a) means for suspending a linear or ~~curvilinear~~ fixture across the flight path of the object in a ~~generally vertical orientation, or otherwise in~~ an orientation which includes a component normal to the flight path, such that the suspension of the fixture is kept clear of said flight path by a distance greater than the height or width of said flying object;

b) means for suspending the fixture; and

c) means attached to a wing or spanwise lifting surface of the flying object and extending forward of a leading edge of the wing or spanwise lifting surface for intercepting the fixture.

42. (original) The combination of claim 41, wherein the fixture is a cable.

Claim 43 canceled.

44. (original) The combination of claim 41, wherein the means for intercepting the fixture comprises at least one hook on a wing or spanwise surface of the flying object.

45. (original) The combination of claim 41, wherein each hook includes a cleat or latch such that after the fixture is intercepted by the hook, sliding of the fixture through the hook is substantially arrested.

46. (original) The combination of claim 41, wherein the motion of the flying object during deceleration is accommodated by compliance of the fixture.

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47. (withdrawn) A method of recovering an aircraft, the method comprising providing an aircraft having at least one wing, and a hook mounted on an outboard portion of the at least one wing,

positioning a line in a flight path of the aircraft such that the line is inclined at an angle relative to the at least one wing of the aircraft, and

causing a leading edge of the at least one wing to intercept the line to guide the line into connection with the hook.

48. (withdrawn) The method of claim 47 wherein the line permits extended forward movement of the aircraft and reduces arrestment loads on the aircraft.

49. (previously presented) In combination:

an aircraft comprising at least one wing and a capture device mounted on an outboard portion of the at least one wing, wherein the capture device extends forward of a line along a leading edge of the wing extending more than twenty percent of the length of the leading edge, and

a fixture positionable in a flight path of the aircraft such that the fixture is inclined at an angle relative to the at least one wing of the aircraft to permit the fixture to intercept the leading edge of the at least one wing and to guide the fixture into connection with the capture device, the forward-extending capture device being proportioned to capture the fixture even when the fixture is forward of said line.

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50. (previously presented) An aircraft comprising at least one wing and a forward-extending capture device mounted on an outboard portion of the at least one wing, wherein the capture device extends forward of a line along a leading edge of the wing extending more than twenty percent of the length of the leading edge, the capture device including a hook and a latch.

51. (currently amended) The aerial recovery system of claim ~~42~~ 1 wherein the arrestment line is held up by a beam and wherein the beam is mounted to move under the force of the aircraft's striking the arrestment line.

52. (previously presented) The aerial recovery system of claim 1 wherein the arrestment line and the capturing device are configured to restrict sliding of the aircraft along the line after the line is guided into connection with the hook.

53. (previously presented) The aerial recovery system of claim 1 wherein the arrestment line is restrained at a lower end to prevent the arrestment line from swinging freely.